

Sending Out "the Pit's" Prices

How the "Wireless" Is Used in the Great Grain Market to Distribute Quotations Throughout the United States—"The Busiest Spot in the World" When Brokers Get Excited



Recording each price fluctuation as it is recorded by wireless from the floor.

"He fancied he could almost hear the thunder of the Pit as it swirled. All La Salle street was listening and watching, all Chicago, all the nation, all the world."—From "The Pit," by Frank Norris.

THE prices from Chicago's Board of Trade—popularly known as "the Pit"—are a potent force all over the world. Business men from New York to Frisco, from Vancouver to Halifax and away off in Liverpool, London, Paris, Rome, Calcutta listen eagerly for the prices of wheat at Chicago. The cost of food and the prospects of making a living throughout the civilized world are strongly influenced by those important prices.

"The Pit" has become famous in literature as the very climax of all that is most strenuous and nerve wracking in human intercourse. The brokers are supposed to be half mad in their frantic behavior, although endowed with superhuman speed, stentorian lungs and an uncanny intelligence. There is in the opinion of observers some influence about dealing in foodstuffs that makes men wilder and fiercer than they could become in ordinary financial stock exchange transactions.

As this business is so vital and so strenuously conducted it will surprise nobody to hear that the method of distributing Chicago Board of Trade quotations is one of the greatest achievements of modern science and efficiency. From the moment a sale is recorded in "the Pit" it is only three and three-fifths seconds before the price is reported all over the United States and a few seconds more before it is reported in Europe.

But any new invention that would cut a fraction of a second from that time or improve the distribution of market news in any way is welcomed by the countless business men who depend on these prices.

The Chicago Board of Trade has just made a most interesting innovation, for it is using the wireless telephone to send out its quotations and general market news at half hour intervals during each daily session. The immediate effect of this step has been to bring the Chicago market closer than ever to producers, dealers and handlers of grain.

Plans are now being made to improve the service so that eventually it will be practicable for any grain man or farmer, wherever he may be, whether at home in bed or away in the woods, to obtain the latest prices and market news. There is theoretically no limit to the field of the radio. It has worked well experimentally from New York to San Francisco and from New York to Paris.

The new system will perhaps be most valuable to the grain dealer who may have millions dependent on his commitments but wants to go away on a fishing expedition to recuperate his strength for the struggles of "the Pit." He can get the latest prices at any times and know just where he stands.

The wireless quotations will also fly through the air to the home of the farmer in the vast plains of the Dakotas or Saskatchewan. He will know what they are going to pay for his wheat and fix his own prices accordingly.

But the wireless quotations cannot answer all requirements, for it is essential for business houses to have a printed record. The regular system of transmitting Board of Trade quotations by means of the printing telegraph, or "ticker," will be maintained for a long time to come. It is one of the triumphs of modern business and well worth understanding.

Every change of prices on the exchange is immediately flashed broadcast over the country. The average number of quotations sent out in this way on every business day of the year is approximately 2,500 on all grains and provisions, the majority being on wheat. And the wonder of it all is that every one of these hundreds of quotations is available in

every part of the United States and Canada, wherever a wire service is maintained, almost as soon as the price is registered in one of the pits of the Board of Trade.

Yet familiar as is the sight of the ticker, with its continuous stream of letters and figures on an unbroken line of narrow paper tape, and as simple as the process of ticking them off appears, it is in reality a complex and ingenious system with which few even in the grain trade are at all acquainted.

Minute after minute during the trading hours of each day prices of grain rise and fall. One instant wheat, for example, may sell at, say, \$1.25 a bushel, the next at \$1.25½, the next at \$1.25¾, or possibly back to \$1.25, or it may sell at fractions below \$1.25—\$1.24¾, ¾, ½, and so on—the fractions always being one-eighth of a cent or a multiple of one-eighth. The total range of prices from low to high during a given day is determined by many factors. Thus in a quiet or settled market, with only a normal amount of trading, this range may amount to one cent.

If news and existing conditions are bullish, such as unfavorable weather or insect ravages to a growing crop, coupled with a scarcity of the grain on hand and a large demand, there may be sufficient buying to force prices up several cents in a single day. On the other hand, if bearish conditions prevail, such as an unusually large crop and a small demand, a predominance of selling orders may send the price down several cents in one day.

It should be borne in mind that conditions not alone in the United States but in every country on the globe where wheat is grown or consumed enter more or less into the making of prices. Conditions in the United States, which is the largest producer of wheat in the world, naturally have the most bearing on the price of this grain.

This is how "the Pit" appeared on a day of tragic price changes to Frank Norris's hero:

"Was the gong ever going to strike? He found himself, all at once, on the edge of the Wheat Pit. It was jammed tight with the crowd of traders and the excitement that disengaged itself from that tense, vehement crowd of white faces and glittering eyes was veritably sickening, veritably weakening. Men on either side of him were shouting mere incoherencies, to which nobody, not even themselves, were listening. Others silent, gnawed their nails to the quick, breathing rapidly, audibly even, their nostrils expanding and contracting. All around roared the vague thunder that since early morning had shaken the building.

"In 'the Pit' the bids leaped to and fro, though the time of opening had not yet come; the very planks under foot seemed spinning about in the first huge warning swirl of 'the Pit's' centripetal convulsion. There was dizziness in the air. Something, some infinite, immeasurable power, onrushing in its eternal courses, shook 'the Pit' in its grasp. Something deafened the ears, blinded the eyes, dulled and numbed the mind, with its roar, with the chaff and dust of its whirlwind passage, with the stupefying sense of its

power, coeval with the earthquake and glacier, merciless, all-powerful, a primal basic throes of creation itself, unassailable, inviolate and untamed.

"Had the trading begun? Had the gong struck? Landry never knew, never so much as heard the clang of the great bell. All at once he was fighting; all at once he was caught, as it were, from all the stable earth, and flung headlong into the heart and center of 'the Pit.' What he did he could not say; what went on about him he could not distinguish. He only knew that roar was succeeding roar, that there was crashing through his ears, through his very brain the combined below of a hundred Niagaras.

"Hands clutched and tore at him, his own tore and clutched in turn. 'The Pit' was mad, was drunk and frenzied; not a man of all those who fought and scrambled and shouted knew what he or his neighbor did. They only knew

to the East—to the bakeshops and hungry mouths of Europe."

In "the Pit" quite as terrible as that? Not often probably, but it is always exciting. We will now hear the plain facts.

Let us follow a single quotation sent out from the Board of Trade. To begin with, all commission houses doing business on the exchange have representatives or brokers in the various "pits"—one each for wheat, corn, oats, rye and barley and provisions. Prior to the opening of a session, which begins at 9 A. M. and closes at 1:15 P. M., except on Saturdays, when the close is at noon, the brokers and individual traders assemble in the pits awaiting the gong which announces the opening of the market.

The brokers may have any number of orders to buy and sell. These orders are written on memorandum sheets, showing the kind of grain to be bought or sold, the number of bushels and the price to be paid or received—if such prices are available. During the trading hours many new orders may come in by telegraph or telephone. To meet the demands of the latter each commission house has one or more telephone operators on the

sell at that price. The seller signifies his acceptance of the trade by a fierce nod. The price at which the transaction was completed is noted by a trained observer, or pit reporter, who has been compared to an animal keeper, on a raised platform at one edge of the pit. Here is where the transmission of the quotation over the wire starts.

The pit reporter quickly writes the price on a slip of paper and flips it to the man at his side. The second man stamps the paper by means of a chronograph, which automatically impresses upon it the day of the month, the hour, the minute and second, and passes it to a third man on another platform just above and behind him.

The third man stamps the paper with another chronograph and hands it to a telegraph operator seated beside him. The latter, operating a "master key," immediately transmits the quotation by Morse code to the office of the ticker company, where a telegrapher receives it through the medium of a telegraph sounder and transmits it directly on the keyboard of the ticker, thereby reproducing the quotation instantly on a thousand tickers throughout Chicago.

Through the medium of a "master circuit," connected with the "master key" already referred to, which governs six automatic repeaters and to which are attached wires covering the entire United States and Canada, the quotation is also received simultaneously by all points in these two countries which subscribe to the service.

While all this sounds more or less complicated, the system has been worked out to such perfection that the average time consumed in transmitting a quotation, from the moment a trade is made in the pit of the Board of Trade until the price at which it was

made appears on the ticker, is only 3-5/8 seconds. The fastest time made is 1-5/8 seconds and the greatest number of quotations ever transmitted in this manner was on August 14, 1914, when an average of 42-2/9 per minute was maintained for 102 consecutive minutes.

The purpose of the chronographs used in stamping the slips of paper on which prices are written by the pit reporter is to make a permanent record of the price of wheat or any other grain at any given moment during the day.

The chronographs are electrically operated and electrically set every ten seconds by means of a master clock, with a ten second contact on the second hand, located in the office of the ticker company. The sending keyboard, located in the same office, is a machine with an arrangement of letters and numerals somewhat like that of a typewriter, except that the characters are arranged in a circle.

In operation the tickers are controlled by a transmitter, which in turn is controlled by the keyboard operator, the action of all three being practically simul-

taneous. The transmitter has an arrangement of segments, each of which corresponds to a certain key on the central keyboard. The tickers also have revolving type wheels containing the same letters and numerals as those on the keyboard. Perfect synchronism exists between the keyboard, the segments on the transmitter and the type wheels of the tickers.

When the keyboard operator presses a certain key on the keyboard the transmitter, on reaching the segment corresponding to the key pressed, immediately stops and sends over the line the necessary number of pulsations to make the type wheel of the ticker revolve in unison with it. The same action causes a platen in the ticker to rise and press the tape against the type wheel, with the result that the proper character is instantly impressed upon the paper.

Any number of circuits with tickers are thus operated, causing all tapes to be printed alike. The speed of the ticker is just twice that of the Morse sender. As an illustration: "July wheat 1.25½" by Morse telegraph requires twenty-eight contacts on his keyboard. The printing telegraph can reproduce on the tape just double the number of quotations that the fastest Morse telegrapher can send.

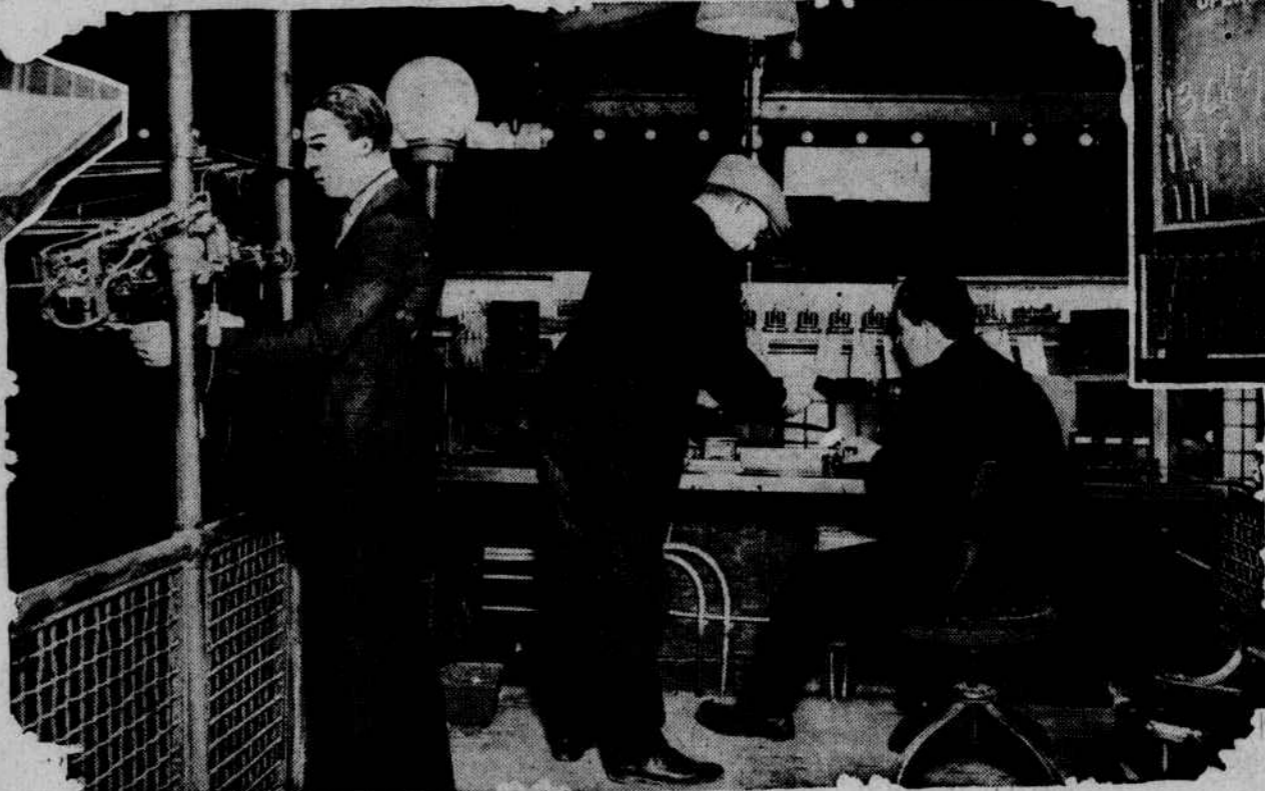
In addition to transmitting its quotations to every part of the country in the manner described the Board of Trade also makes use of a special ticker service devoted to the dissemination of news, statistics and other valuable information. This information is distributed over the so called "Broad tape ticker," an electrically operated instrument which is an important factor in the marketing of grain and provisions. The transmitter of this device consists of a mechanism with a keyboard like that of a typewriter and in operation works on the same principle as the keyboard of the quotation ticker.

Wars, revolutions, strikes, famines, "Genoa conferences" and similar news events are of vital importance to the dealers in grains, almost as important as the price quotations. The news service sent out by the Chicago Board of Trade is highly regarded for its condensed and reliable character.

The tickers receiving this service, which are located in practically all commission houses and on the exchange floor, are connected by wire to the transmitter and print instantly on a roll of tape about six inches wide all news that is transmitted by the operator. Market news and quotations from all foreign countries as well as domestic markets are gathered and distributed over these tickers. The trade watches the news tickers very closely and is posted up to the minute on all important developments and general price movements in the markets of the world.

Among the features of this ticker service is the rapid broadcasting of news to small country towns throughout the States by way of the private wire systems. Many commission houses have private wire systems reaching all parts of the country and they relay the news from these tickers in their telegraph offices as fast as it is printed to their branch offices. Thus a news item of importance is flashed throughout the country within a few minutes after its publication on the ticker tape. Small town newspapers in many cases depend on the branch offices of the Chicago commission houses for most of their commercial news. The United States Bureau of Markets also uses this ticker service for the distribution of its live stock market reports and recognizes the system as a rapid and inexpensive way of publishing its reports almost simultaneously.

It will be seen that the strenuous traders of "the Pit" play an important part in keeping the world wide awake as well as in feeding it.



Distributing orders to the floor from the wireless receiving station.



Clerks in an overhead "basket" relaying quotations from the floor to their own wireless operators behind them.



A different sort of wireless—brokers signalling to clerks in the over-hanging baskets orders to be transmitted.

that a support long thought to be secure was giving way, not gradually, not evenly but by horrible collapses and equally horrible upward leaps. Now it held, now it broke, now it reformed again, rose again, then again in hideous cataclysms fell from beneath their feet to lower depths than before.

"The official reporter leaned back in his place, helpless. On the wall overhead the indicator on the dial was rocking back and forth, like the mast of a ship caught in a monsoon. The price of July wheat no man could so much as approximate. The fluctuations were no longer by fractions of a cent, but by 10 cents, 15 cents, 25 cents at a time. On one side of 'the Pit' wheat sold at 90 cents, on the other at \$1.25.

"And all the while above the din upon upon the floor, above the trampings and the shoutings in 'the Pit' there seemed to thrill and swell that appalling roar of the wheat itself coming in, coming on like a tidal wave, bursting through, dashing barriers aside, rolling like a measureless, almighty river, from the farms of Iowa and the ranches of California, on

trading floor of the exchange in close proximity to the pits.

We will suppose that a commission house with offices in a nearby building receives an order to buy 5,000 bushels of "July wheat," by which is meant wheat for delivery during the month of July, even though the order is executed in April or even an earlier month, at \$1.25 a bushel. This order is immediately telephoned to the firm's telephone operator and the latter instantly rushes a written memorandum of the order to the firm's broker in the pit by messenger.

And now may be seen some of those gestures and contortions which appear to the naive outsider almost maniacal. If special haste is required—and it nearly always is—the messenger flashes the order to the broker by means of the sign language used by the traders in denoting prices, amounts of grain, and sales and purchases.

The order to buy 5,000 bushels of July wheat at \$1.25 having reached the broker he proceeds to execute it by signaling his desires to some broker who is willing to